consistent use of problem tracking tools results in delays in problem identification, prioritization, and resolution.

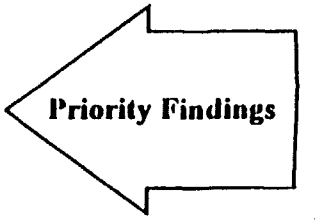
Problem Tracking

Best Practices

- Report and track all defects
- Identify problem tracking tools
- Define defect status reporting process and frequency

BellSouth

- **CMVC is implemented for error / defect tracking but inconsistently applied across all ENCORE applications.**
- **Daily Status Summary reporting process is defined, but not followed consistently.**
- CMVC queries for Volume Testing are complete to generate several defect reports
- There is no apparent integration of ENCORE defect / status tracking



Best Practices Comparative Analysis
Testing Metrics

Work is in progress, however, at this time there are insufficient details for analysis.

Testing Metrics

Best Practices

- Based upon expected or historical loads
- Typical Volume Metrics
  - Throughput
  - Response times
  - Load and load run times
  - Load per time interval
  - Turnaround time
  - Benchmark data for comparison
- Auditing
  - Report and track testing results
  - Defect analysis and causal analysis
  - Identify external and internal requirements

(Regulatory and Business Drivers)

BellSouth

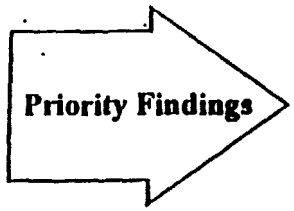
- **There are insufficient results for analysis due to the functionality and test environment constraints.**
- **Response times for LENS transactions and data collection points are in the development.**

Priority Findings

- The methods for data collection and the data points are in the design phase.
- Report layout requirements to meet internal and external needs are not fully identified.

Priority Findings and Recommendations
Test Plan

The Volume Test Plan Objectives, Scope, Assumptions, Test Scenarios and Test Scripts all need to be finalized.



ellSouth

The Volume Test plan is work in progress, with further refinement ongoing.

Unit and Function testing continues, impacting stability of Volume Testing activities and predictable dependencies.

Volume Test scripts and scenarios are in development.

Meeting the proposed testing schedule is at risk.

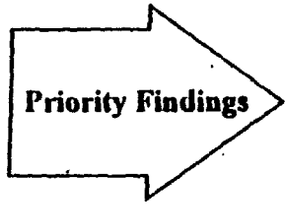
Test Plan Recommendations

- ○ Best Process Actions
- ▲ Critical Test Actions

- ▲ **Finalize and validate Test Objectives, Scope, Assumptions, and Test Plan.**
- ▲ **Revise the testing schedule to reflect application capabilities and commitments.**
- ▲ **Incorporate LENS Volume Testing with overall ENCORE Volume Testing.**
- ▲ **Identify and assess Volume Test external requirements.**

Priority Findings and Recommendations
Test Environment

Verify that the test environment provides production equivalence for Volume Testing.



Test environment for LENS is unstable and unreliable.

LENS test environment information is incomplete.

SOCS performance degrades over time most notably when processing errors.

LESOG, LENS, and SOCS have severity 1s and 2s impacting the stability of volume testing.

Test Environment Recommendations

- ○ Best Process Actions
- ▲ Critical Test Actions

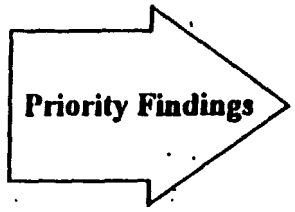
○ **Ensure that the Volume Test environment changes are communicated to ensure that the Volume Test schedule and performance are *not compromised*.**

▲ **Verify that the production and test *environments* are operationally equivalent.**

▲ **Ensure the LESOG host capacity is improved.**

Priority Findings and Recommendations
Test Scenarios / Test Data

Ensure the scripts provide test coverage for representative transactions, order mix, access method, and transaction fl



- EDI test scenarios and data have been created, but have incomplete documentation.
- LENS test scenarios and data are not documented; but are required for repeatable test runs and consistent test results.
- Test scenarios do not reflect peak processing or various access methods.
- Execution procedures are not documented.

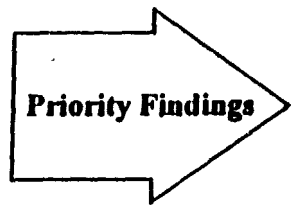
Test Scenarios / Test Data recommendations

- ○ Best Process Actions
- ▲ Critical Test Actions

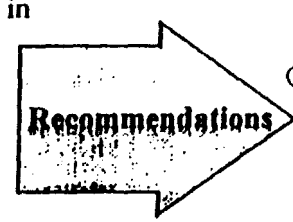
- ▲ **Document and review the test scenarios, scripts, and execution procedures.**
- ▲ **Ensure the scripts provide test coverage for representative EDI/LENS transactions (type, time of day, order rates), order mix (EDI/LENS), access methods (Dial - In, LAN-LAN, FAX, and Internet) and transaction flows.**
- ▲ **Combine LENS Volume Test Plan with overall ENCORE Volume Test Plan.**

Priority Findings and Recommendations
Library Control

Institute build / release control on ENCORE code, allowing only approved fixes to be incorporated into the test and pr



- Lack of DDS and STS coordination results in varying functionality levels and code promotions.
- No common Configuration tool is in use.
- Release Management does not appear to have documented steps, version retention, or release level content.
- There is no assigned ENCORE Release Manager.



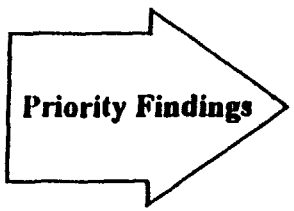
Library Control Recommendations

- ○ Best Process Actions
- ▲ Critical Test Actions

- ○ **Establish backout procedures for fixes that do not pass the Volume regression testing (continue to perform regression testing on fixes).**
- ○ **Institute build/release control on ENCORE code, allowing only approved fixes for known defects to be incorporated in the test and production environment.**
- ○ **Monitor the stability and reliability of LENS code to enable LENS Volume Test progress.**
- ○ **Identify an ENCORE Release Manager.**
- ○ **Use a common Release Management tool.**
- ○ **Introduce a common configuration tool.**
- ○ **Monitor code changes for each build/release.**
- ○ **Re-run the system test bucket prior to Volume Test exit.**

Priority Findings and Recommendations
Project Management

Integrate the Volume Test schedule, issues and defect tracking with overall ENCORE Project Management.

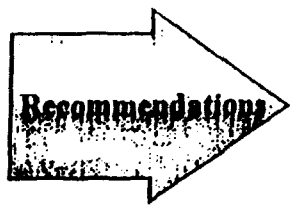


Code changes and fixes are not well communicated.

Schedule and milestones are not kept current or constrained with mitigation.

Issues / Action Plans are not well documented, prioritized, monitored, or consistently tracked.

NCORE project status is not clearly integrated or widely communicated.



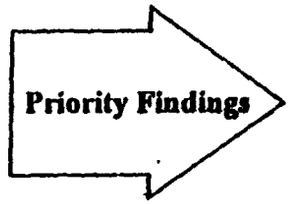
Project Management Recommendations

- ○ Best Process Actions
- ▲ Critical Test Actions

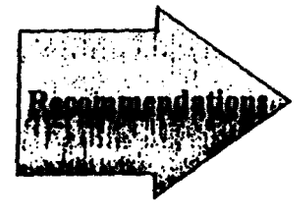
- ○ **Identify additional risks and mitigation plans.**
- ○ **Deploy an escalation and resolution process for Volume Test defects, issues and risks.**
- ○ **Prioritize defects and issues to support the management decision making processes.**
- ○ **Integrate the Project Management processes with the overall ENCORE processes.**

Priority Findings and Recommendations
Problem Tracking

Gain commitment for prioritization and resolution for ENCORE Severity 1s and 2s.



- CMVC is implemented for error / defect tracking but inconsistently applied across all ENCORE applications.
- Daily Status Summary reporting process is defined, but not followed consistently.



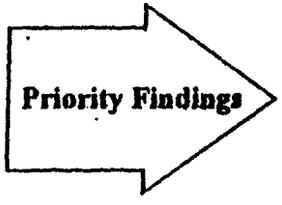
Problem Tracking Recommendations

- ○ Best Process Actions
- ▲ Critical Test Actions

- ○ **Gain commitment for prioritization and resolution of ENCORE severity 1s and 2s.**
- ○ **Integrate Volume Test problem management with ENCORE problem management.**
- ○ **Finalize problem reporting processes.**
- ○ **Record and report all defects and problems.**

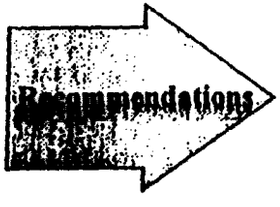
Priority Findings and Recommendations
Test Metrics

Document the test results approach including data points, collection methods, and report layouts. Integrate LENS St



Gaps

- There are insufficient results for analysis.
- Response times for LENS transactions and data collection points are undefined.
- Changing Test Objectives and Assumptions are resulting in inaccurate data points.



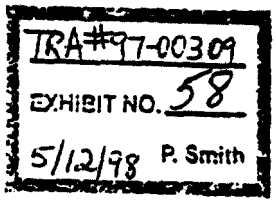
Testing Metrics Recommendations

- ○ Best Process Actions
- ▲ Critical Test Actions

- ▲ **Document the test results approach including data points, collection methods, and report layouts.**
- ▲ **Formalize the tracking of testing results and record when test objectives are met or exceeded.**
- ○ **Summarize the reporting and tracking of defects, and record defects fixed.**

ATTACHMENT 50

BellSouth
Access Certification
Testing
October - November 1997



Performed By: Chris Swick
Reviewed By: _____

1.1 Internal Testing by BellSouth - OSS **1.1.1.4**
Volume Testing, Part II Section 1.1

Assertion Objective

IBM was also engaged to perform a preliminary review of the volume testing approach being used to validate tha BellSouth's CLEC interface systems can handle the projected loads and to provide input on how the testing could b improved. Specific objectives were to: 1) audit the volume test approach, 2) provide input on data collection an reporting of results, and 3) evaluate the potential use of alternative tools to facilitate the testing approach

Work Perfor

1.1.1.4 - E&Y obtained and reviewed IBM's assessments on BST's data collection and test reporting results. E&Y als reviewed the adequacy and appropriateness of IBM's evaluation on the potential use of alternative tools to facilitate th BST testing approach.

Results

IBM's ENCORE Volume Test Assessment document (Workpaper 1.1.1/4.2) was provided by BellSouth. Th documentation outlined each objective and assertion and provided adequate feedback which included comment recommended actions (if any), approval limits, and risks.

IBM's conclusions concerning the specific objectives outlined above are summarized on page 6 of the BellSout ENCORE Volume Test Assessment Report (1.1.1/4.2). We confirmed that IBM performed the preliminary review of th volume testing approach by validating that BellSouth's CLEC interface systems can handle the projected loads and provide input on how the testing could be improved by obtaining and reviewing IBM's assessments. We confirme through review of the BellSouth ENCORE Volume Test Assessment Report, that IBM objectives (Page 6 of 1.1.1/4.2 were met.

Exceptions Noted

Many assumptions reviewed by IBM were in process or had not begun at the time of the review. This provided for ma conditional approvals.

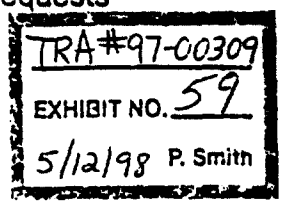
Conclusion

Based upon a review of IBM's ENCORE Volume Test Assessment, it **does appear** that IBM adequately performed review of the volume testing approach being used to validate that BellSouth's CLEC interface can handle projected loa and to provide input on how testing can be improved. Also, it **does appear** that all three objectives of 1) auditing t volume test approach, 2) providing input on data collection and reporting of results, and 3) evaluating the potential use alternative tools to facilitate the testing approach have been met.

000040

ATTACHMENT 51

BellSouth Telecommunications, Inc.
TRA Docket 97-00309
AT&T's Second Document Requests
Dated March 6, 1998
Item No. 4



REQUEST: Produce all documents that discuss, describe, refer to, or relate to, any tests (other than the volume tests described in Document Request No. 3) on BellSouth's OSS that were performed or observed by Ernst & Young in connection with the preparation of the February 11 Ernst & Young Report.

RESPONSE: The documents responsive to this request will be produced at a mutually agreeable time at the offices of BellSouth Telecommunications, Inc., 675 West Peachtree Street, N.E., Atlanta, Georgia 30375, except that any customer proprietary information contained in these documents will be redacted.

Narrative on Volume Testing

Forecast of projected volumes

No information was forthcoming from the CLECs regarding expected future volumes. As a result, BST was forced to calculate future volumes based on straight line projections of past volumes with certain assumptions.

Projected orders were calculated by reviewing order statistics from SOCS that occurred in September, October, and November. The trend during that time period showed a 20% per month increase in volume. Therefore December order volume is forecasted at a 20% increase over November, January is another increase of 20% etc.

When the test plan was developed, management decided to skew order volume 80% EDI and 20% LENS because they anticipated that the large CLECs (AT&T and MCI) would be entering orders via EDI. However, the current and projected volumes are based on 84% Lens and 16% EDI because these CLECs are not using Gateway systems for processing orders. As a result, the current projection of LENS orders will exceed the tested 2000 order capacity by April of 1998.

Inquiries were calculated based on a calculated relationship between inquiries and orders identified from Orbix event statistic reports.

The Forecast is adjusted for anticipated ramp-ups of ECLITE and API systems with planned implementations during 1998.

Testing

Testing started at 4:08 on 1/15/98 with the input of the first order to LENS from the Bellcore client connected to BST via a LAN-to-LAN connection. This was followed by release of the first EDI batch from the Harbinger VAN at 4:17. 400 order batches were then released hourly from the Harbinger VAN. Lens data processed continuously until all test transactions from Bellcore were processed. During the test, team members monitored logs on the various servers to ensure that transactions were processing through the gateway's systems. Problems were corrected on the fly as they are in the production environment.

Followup

After the transactions were completed, Bellcore and BST team members generated test statistics from various system logs evidencing the amount and timing of orders processed.

ATTACHMENT 52

Prepared at Request of Counsel for Bellsouth In Anticipation of Litigation

LENS Volume Test Requirements

John Mikolajczyk

		B	C	D	E	F
1					[redacted]	[redacted]
2			Stacey's		May-98	Nov-98
3			Testimony		Forcast	Forcast
4						
5	Number of Orders / Day	Step 1.1.1+1.1.3	10,000 ✓		3,534	10,551
6						
7	Number of Orders / Hour		500		177	528
8						
9	Number of Orders / Busy Hour		1,100		389	1,161
10						
11	Number of Orders / Day EDI	Step 1.1.1+1.1.3	8,000 ✓		552	1,646
12						
13	Number Orders / Day LENS	Step 1.1.1 - 1.1.3	2,000 * AAECL 19.74		2,982	8,905
14						
15	Number of Orders / Hour LENS		100		149	445
16						
17	Number of Orders / Busy Hour LENS		220		328	980
18						
19	Number of Pre-Ord DB Calls / Day	6.0	60,000	5.7	20,247	60,458
20	- Address	59.3%	35,580		12,006	35,852
21	- Due Date	11.5%	6,900		2,328	6,953
22	- Service	4.7%	2,820		952	2,842
23	- TN	14.5%	8,700		2,936	8,768
24	- CSR	10.0%	6,000		2,025	6,046
25		100.0%	60,000		20,247	60,458
26						
27	Number of Pre-Order Inquiries / Day					
28	- INQ-Address	(inqaddr & inqtn)	17,160		5,791	17,291
29	- INQ-Due Date	(inqcal)	6,900		2,328	6,953
30	- INQ-Service	(inqfeats)	2,820		952	2,842
31	- INQ-TN	(inqresrv)	8,700		2,936	8,768
32	- INQ-CSR	(inqcsr)	6,000		2,025	6,046
33		4.2	41,580	4.0	14,031	41,897
34						
35	Number of Pre-Order Inquiries / Hour					
36	- INQ-Address	(inqaddr & inqtn)	858		290	865
37	- INQ-Due Date	(inqcal)	345		116	348
38	- INQ-Service	(inqfeats)	141		48	142
39	- INQ-TN	(inqresrv)	435		147	438
40	- INQ-CSR	(inqcsr)	300		101	302
41			2,079		702	2,095
42						
43	Number of Pre-Order Inquiries / Busy Hour					
44	- INQ-Address	(inqaddr & inqtn)	1,888		637	1,902
45	- INQ-Due Date	(inqcal)	759		256	765
46	- INQ-Service	(inqfeats)	310		105	313
47	- INQ-TN	(inqresrv)	957		323	964
48	- INQ-CSR	(inqcsr)	660		223	665
49			4,574		1,543	4,609
50						
51	Number of Pre-Order Inquiries / Non-Busy Hour					
52	- INQ-Address	(inqaddr & inqtn)	804		271	810
53	- INQ-Due Date	(inqcal)	323		109	326
54	- INQ-Service	(inqfeats)	132		45	133
55	- INQ-TN	(inqresrv)	408		138	411
56	- INQ-CSR	(inqcsr)	281		95	283
57			1,948		657	1,963

FRA#97-0030
EXHIBIT NO. 6
5/12/98 P. Sm

0005

LENS Volume Test Requirements

	A	B	C	D	E	F
58					Bob's	Mike
59			Stacey's		May-98	Nov-98
60			Testimony		Forcast	Forcast
61						
62	Number of Orders / Day		10,000		3,534	10,551
63						
64	Number of Orders / Hour		500		177	528
65						
66	Number of Orders / Busy Hr		1,100		389	1,161
67						
68	Number Orders / Day LENS		2,000		2,982	8,905
69						
70	- New Connects (A)	25%	500		746	2,226
71	- Disconnects (D)	3%	60		89	267
72	- Switch w/Changes (V)	19%	375		559	1,670
73	- Switch w/Changes (V) w/TN	6%	125		186	557
74	- Switch As Is (W)	50%	1,000		1,491	4,453
75		103%	2,060		3,071	9,172
76						
77	Number of Orders / Hour LENS		100		149	445
78						
79	- New Connects (A)	(firmnew)	25		37	111
80	- Disconnects (D)	(firmdisc)	3		4	13
81	- Switch w/Changes (V)	(firmchg)	19		28	83
82	- Switch w/Changes (V) w/TN	(firmchgtn)	6		9	28
83	- Switch As Is (W)	(firmasis)	50		75	223
84			103		154	459
85						
86	Number of Orders / Busy Hour LENS		220		328	980
87						
88	- New Connects (A)	(firmnew)	55		82	245
89	- Disconnects (D)	(firmdisc)	7		10	29
90	- Switch w/Changes (V)	(firmchg)	41		62	184
91	- Switch w/Changes (V) w/TN	(firmchgtn)	14		21	61
92	- Switch As Is (W)	(firmasis)	110		164	490
93			227		336	1009
94						
95	Number of Orders / Non-Busy Hour LENS		94		140	417
96						
97	- New Connects (A)	(firmnew)	23		35	104
98	- Disconnects (D)	(firmdisc)	3		4	13
99	- Switch w/Changes (V)	(firmchg)	18		26	78
100	- Switch w/Changes (V) w/TN	(firmchgtn)	8		9	26
101	- Switch As Is (W)	(firmasis)	47		70	209
102			96		144	430